

VARIABLE FREQUENCY SYSTEM

VH3 Series / VB5N Series / VB5 Series / V5 Series



- Stable performance easy to operate
- Suitable motor 0.75~55KW
- High performance motion control DSP chip
- Optimized structure

Excellent Product Performance

VH3 has enhanced performance

- Output frequency max 500Hz, can control high speed motor
- Rich and flexible input, output terminal and control methods
- SMT and conformal coating technology make the product more stable
- Built-in PID auto-tune function and simple PLC function, fit for different needs
- Protection for over voltage, under voltage, over load, over current, over heat. The protection for short circuit can avoid the inverter damage caused by external machine error
- Standard RJ-45 Ethernet port (the connection between operate panel and main control panel)
- Good ventilation and cooling






VH3 series complete basic functions

No sense vector control mode	Built-in two groups of PID function	Flexible I/O terminals	Online modify the parameters
<ul style="list-style-type: none"> ■ Smooth drive large load at low frequency 	<ul style="list-style-type: none"> ■ Easy to make process close loop control system, improve the precision. 	<ul style="list-style-type: none"> ■ I/O terminals can be defined to diverse functions, greatly enhances the operability and multi-selectivity of the product. 	<ul style="list-style-type: none"> ■ When the frequency converter is running, some parameters can be modified without stopping operation, which makes the operation more convenient.

Speed tracking function under the control of VF	Energy consumption brake unit	High speed pulse input and output
<ul style="list-style-type: none"> ■ If it needs to start up the motor again before it stops, the frequency inverter can catch the present speed and start up without impact. 	<ul style="list-style-type: none"> ■ The inverter has built-in brake unit. When internal brake unit is not enough, the external brake unit can be connected, and we provide different kinds of brake units. 	<ul style="list-style-type: none"> ■ X6 terminal supports maximum 50KHz pulse input for pulse frequency speed tuning ■ DO terminal support maximum 100KHz pulse output, user-defined function. PLC and other controller can read the internal variable of inverter via frequency measurement.

Up to 9 kinds of frequency setting mode	Built-in simple PLC function	RS485 interface, support Modbus-RTU protocol
<ul style="list-style-type: none"> ■ Set the frequency through potentiometer, digital keyboard, UP/DOWN terminal, VI/CI terminal, pulse terminal, combination setting, remote setting from serial port. 	<ul style="list-style-type: none"> ■ The simple PLC function is a multi-segment speed generator. The inverter can auto-change the frequency and direction as the running time. 	<ul style="list-style-type: none"> Master-slave multi-machine linkage function

Product Introduction

More humanistic structural design	Moveable cooling fan (for the frequency inverter power above 11KW)	Complete protection functions	Filtering unit
<ul style="list-style-type: none"> Protection level accords to IP20 Good ventilation and cooling design 		<ul style="list-style-type: none"> Over current protection Over voltage protection Under voltage protection Overheating protection, the inverter will close the output and free stop Over load protection, the inverter will close the output and free stop 	<ul style="list-style-type: none"> The frequency inverter power above 30KW are equipped with reactor to restrain the higher harmonic and improve the power factor.
Moveable numeric keyboard		Optional accessories: installation seat of operate panel and extension cable	
		<ul style="list-style-type: none"> User can remote operate the frequency inverter with the accessories. 	

Product naming rule

VH3 - 4 2P2
① ② ③

① Type

Symbol	Series name
VH3	No sense vector control

② Voltage level

Symbol	Voltage level
4	380V

③ Motor capacity

Symbol	Max suitable motor capacity
2P2	2.2 KW

*Note: P stands for decimal point.

VH3 series have two 380V models. The VFD function is shown as the following table.

Product model	485 communication	Multi-speed running	X6 high speed pulse input	Relay output	High speed pulse output	Analog voltage output	Analog current output	Error relay output
VH3-40P7	√	√	√	√	√	√	√	√
VH3-41P5	√	√	√	√	√	√	√	√
VH3-42P2	√	√	√	√	√	√	√	√
VH3-43P7	√	√	√	√	√	√	√	√
VH3-45P5	√	√	√	√	√	√	√	√
VH3-47P5	√	√	√	√	√	√	√	√
VH3-4011	√	√	√	√	√	√	√	√
VH3-4015	√	√	√	√	√	√	√	√
VH3-4018	√	√	√	√	√	√	√	√

VB5N - 4 3 P 7 - S
① ② ③

① Type

Display	Series name
VB5N	VVVF control

② Voltage level

Display	Voltage level
2	220V
4	380V

③ Motor capacity

Display	Max suitable motor capacity
0P7	0.7 KW
3P7	3.7 KW

*Note: P stands for decimal point.

VB5N series contain 220V and 380V voltage level, -S type means simple version inverter. Simple version and general model comparison table:

Product model	485 communication	X6 high speed pulse input	Relay output
VB5N-20P7	√	×	×
VB5N-20P7-S	×	×	×
VB5N-21P5	√	×	×
VB5N-21P7-S	×	×	×
VB5N-40P7	√	√	√
VB5N-40P7-S	×	×	×
VB5N-41P5	√	√	√
VB5N-41P5-S	×	×	×
VB5N-42P2	√	√	√
VB5N-42P2-S	×	×	×
VB5N-43P7	√	√	√
VB5N-43P7-S	×	×	×

*Note: × not support, √ support.

Rich Models

The frequency inverter contains VH3 series, VB3 series, VB5 series, VD4 series, VB5N series, V5 series. The voltage level has 220V single phase and 380V three-phase. The suitable motor capacity is from 0.75KW to 55KW.

Model table

Capacity (KW)	Current (A)	Single phase 220V			Three-phase 380V		
		VB5N	VB5	VH3	VB5N	VB5	V5
0.75	4.7	VB5N-20P7(-S)					
	2.5				VB5N-40P7(-S)	VB5-40P7	
	2.1			VH3-40P7			
1.5	7.5	VB5N-21P5	VB5-21P5		VB5N-41P5(-S)		
	4.5					VB5-41P5	
	3.8			VH3-41P5			
2.2	10.0		VB5-22P2				
	6.0				VB5N-42P2(-S)	VB5-42P2	
	5.1			VH3-42P2			
3.7	9.6				VB5N-43P7(-S)	VB5-43P7	
	9.0			VH3-43P7			
5.5	14.0					VB5-45P5	
	13.0			VH3-45P5			
7.5	17.0			VH3-47P5		VB5-47P5	
11.5	25.0			VH3-4011			V5-4011
15	33.0						V5-4015
	32.0			VH3-4015			
18.5	38.0						V5-4018
	37.0			VH3-4018			
22	46.0						V5-4022
	45.0			VH3-4022			
30	60.0			VH3-4030			V5-4030
37	75.0						V5-4037
45	90.0						V5-4045
55	110						V5-4055

Standard specification of level 220V

Model		VB5N-20P7(-S)	VB5N-21P5(-S)	VB5-20P7	VB5-21P5	VB5-22P2
Output	Suitable motor (KW)	0.75	1.5	0.75	1.5	2.2
	Rated output current (A)	4.7	7.5	4.7	7.5	10.0
	Rated voltage (V)	AC 220				
	Frequency range (Hz)	0~500				
	Frequency resolution (Hz)	0.01				
	Overload ability	150% of rated current 1 minute, 180% of rated current 1 second				
Input	Rated voltage/frequency	Three-phase 220V, 50/60 Hz				
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%				
	Allowable range of frequency fluctuation	Frequency: ±5%				
	Power supply capacity (KVA)	1.5	2.8	1.5	2.8	4.5

Standard specification of level 380V

Model VH3-4___		0P7	1P5	2P2	3P7	5P5	7P5
Output	Suitable motor (KW)	0.75	1.5	2.2	3.7	5.5	7.5
	Rated output current (A)	2.1	3.8	5.1	9.0	13	17
	Rated voltage (V)	AC 380					
	Frequency range (Hz)	0~500					
	Frequency resolution (Hz)	0.01					
Overload ability	150% of rated current 1 minute, 180% of rated current 1 second						
Input	Rated voltage/frequency	Three-phase 380V, 50/60 Hz					
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%					
	Allowable range of frequency fluctuation	Frequency: ±5%					
	Power supply capacity (KVA)	1.5	3	4	5.9	8.9	11

Model VH3-4___		011	015	018	022	030
Output	Suitable motor (KW)	11	15	18.5	22	30
	Rated output current (A)	25.0	32.0	37.0	45.0	60.0
	Rated voltage (V)	AC 380				
	Frequency range (Hz)	0~500				
	Frequency resolution (Hz)	0.01				
Overload ability	150% of rated current 1 minute, 180% of rated current 1 second					
Input	Rated voltage/frequency	Three-phase 380V, 50/60 Hz				
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%				
	Allowable range of frequency fluctuation	Frequency: ±5%				
	Power supply capacity (KVA)	17	21	24	30	40

Model VB5N-4___		0P7 (-S)	1P5 (-S)	2P2 (-S)	3P7 (-S)
Output	Suitable motor (KW)	0.75	1.5	2.2	3.7
	Rated output current (A)	2.5	7.5	6.0	9.0
	Rated voltage (V)	AC 380			
	Frequency range (Hz)	0~500			
	Frequency resolution (Hz)	0.01H			
Overload ability	150% of rated current 1 minute, 180% of rated current 1 second				
Input	Rated voltage/frequency	Three-phase 380V, 50/60 Hz			
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%			
	Allowable range of frequency fluctuation	Frequency: ±5%			
	Power supply capacity (KVA)	2.1	2.5	3.0	5.9

Model VB5-4___		0P7	1P5	2P2	3P7	5P5	7P5
Output	Suitable motor (KW)	0.75	1.5	2.2	3.7	5.5	7.5
	Rated output current (A)	2.5	4.5	6.0	9.6	14.0	17.0
	Rated voltage (V)	AC 380					
	Frequency range (Hz)	0~500					
	Frequency resolution (Hz)	0.01					
Overload ability	150% of rated current 1 minute, 180% of rated current 1 second						
Input	Rated voltage/frequency	Three-phase 380V, 50/60 Hz					
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%					
	Allowable range of frequency fluctuation	Frequency: ±5%					
	Power supply capacity (KVA)	2.1	2.5	3.0	5.9	8.5	11.0

Model V5-4___		011	015	018	022	030	037	045	055
Output	Suitable motor (KW)	11	15	18.5	22	30	37	45	55
	Rated output current (A)	25.0	33.0	38.0	46.0	60.0	75.0	90.0	110.0
	Rated voltage (V)	AC 380							
	Frequency range (Hz)	0~500							
	Frequency resolution (Hz)	0.01							
Overload ability	150% of rated current 1 minute, 180% of rated current 1 second								
Input	Rated voltage/frequency	Three-phase 380V, 50/60 Hz							
	Allowable range of AC voltage fluctuation	Voltage: -20%~20% voltage imbalance rate: < 3%							
	Allowable range of frequency fluctuation	Frequency: ±5%							
	Power supply capacity (KVA)	15	20	25	30	40	50	60	75

Specification And Performance

Environment and structure

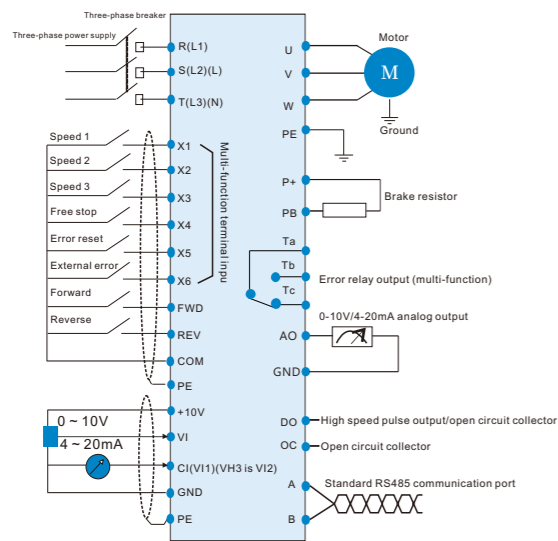
Item		Specification
Environment	Using place	Indoor, protect from direct sunlight, dustless, no corrosive gas, n4 o oil mist, no steam
	Altitude	Lower than 1000 meters (need derate when higher than 1000 meters)
	Ambient temperature	-10°C~+40°C
	Humidity	< 90% RH, no condensation
	Vibration	< 5.9 m/s2 (0.6G)
	Storage temperature	-20°C~+60°C
Structure	Protection structure	IP20 (when use keyboard or status display unit)
	Cooling code	Forced air-cooling
	Installation mode	Wall-mounted, cabinet-mounted

Performance specification

Control panel	Modulation mode	Optimal space voltage vector modulation SVPWM	
	Control mode	V/F control; open loop vector control (only VH3 support)	
	Frequency accuracy	Digital setting: the highest frequency ×±0.01% Analog setting: the highest frequency ×±0.2%	
	Frequency resolution	Digital setting: 0.01Hz Analog setting: the highest frequency×0.1%	
	Startup frequency	0.20Hz~20.00Hz (VH3为0.00Hz~10.00Hz)	
	V/F curve	Five modes: constant torque V/F curve, 1 kind of user-defined multi-segment V/F curve, 3 kinds of torque falling curve (2nd power, 1.7th power, 1.2nd power); VH3 has 9 kinds of V/F curve	
	Acceleration and deceleration curve	2 modes: linear acceleration/deceleration, S curve acceleration/deceleration; 7 kinds of acceleration/deceleration time, units options: minute/second, up to 6000 minutesBuilt-in energy consumption brake unit, enable to connect external brake resistor (18.5kw and above models need to add external brake unit)Jog frequency range: 0.1 to 50.00Hz	
	Energy consumption brake	Jog acceleration/deceleration time: 0.1 to 65.0 s;	
	Jog	VH3 jog frequency range: 0.00Hz~max frequency, jog acceleration/deceleration time 0.0~6500s	
	Multi-speed running	Run in multi-speed mode via built-in PLC or control terminals	
Running functions	Fixed-length control	VFD stop when reaching the settings length	
	Communication function	RS-485 port, support Modbus-RTU protocol. support master-slave linkage function	
	Command running channel	Control panel, control terminals, serial port. 3 modes can switch to each other	
	Frequency setting channel	Potentiometer (VH3 cannot support), up/down buttons, function code, serial port, analog voltage, analog current (VH3 cannot support), pulse, multi-speed setting, simple PLC setting. All kinds of modes can switch to each other	
	Digital input channel	Forward/backward command;6 channels programmable digital input,35 kinds of functions, X6 supports 0~20KHz pulse input (VH3 can support 0~50KHz pulse input)	
	Analog input channel	2 channels analog inputOptions: 4 to 20mA/0 to 10 V (VH3 only support 0~10V)	
	Analog output channel	1 channel analog input: 0 to 10 V,4 to 20mAOutput the preset frequency, output frequency	
	Digital, pulse output channel	1 channel programmable open collector output1 channel relay output1 channel 0 to 20 KHz pulse output (VH3 support 1 channel 0~100KHz pulse output)	
	Control functions	LED digital display	Display the preset frequency, output voltage, output current, etc.
		External meter display	Display the output frequency, output current, output voltage, etc.
Key lock		Lock all the keys	
Protection functions	Over current protection, overvoltage protection, under voltage protection, overheat protection, overload protection		
Accessories	Brake unit, control panel, extension cable of the control panel		

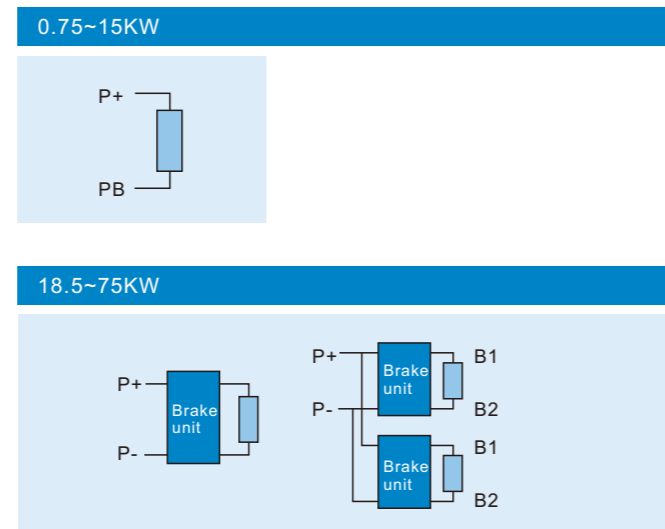
Product Introduction

VB5N/VB5/V5 Standard Wiring Diagram



* Note: VH3 has no FWD and REV terminal; X1~X6 terminals defaulted have no function, can be defined freely; 2 VI terminal, no CI terminal.

The brake resistor wiring of frequency inverter VB5N/VB5/V5



VH3/VB5N/VB5/V5 Accessories

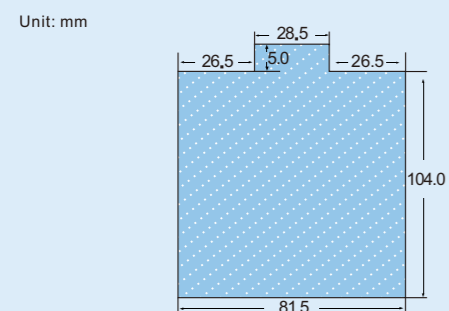
The frequency inverters 0.75~15KW have brake unit inside. Please refer to the following table to choose brake unit if there are energy-consumption brake requirements. The inverter above 18.5KW need to connect external brake unit. Please refer to wiring diagram above.

Operate panel and extension cable

Operate panel	Power range (KW)	Suitable model	Mounting dimension of control panel W×H (mm)
VB5-OPU-01	0.75~2.2	VB5 series single phase	62*75
	0.75~3.7	VB3, VB5 series three-phase	
	5.5~7.5	VB5 series three-phase	
V5-OPU-03	11~55	V5, VH3 series	71*131

* Note: suitable extension cable model: N meter VB extension cable. N can be 1, 2, 3.

VH3/VB5N series operate panel model is D-panel. The serial port connection cable between operate panel and CPU circuit is D-CN-1.5, the default length is 1.5m. It needs VB5N operate panel foundation for extending the operate panel. The extension operate panel will be installed on the foundation. The mounting dimension of foundation is shown in the following diagram.

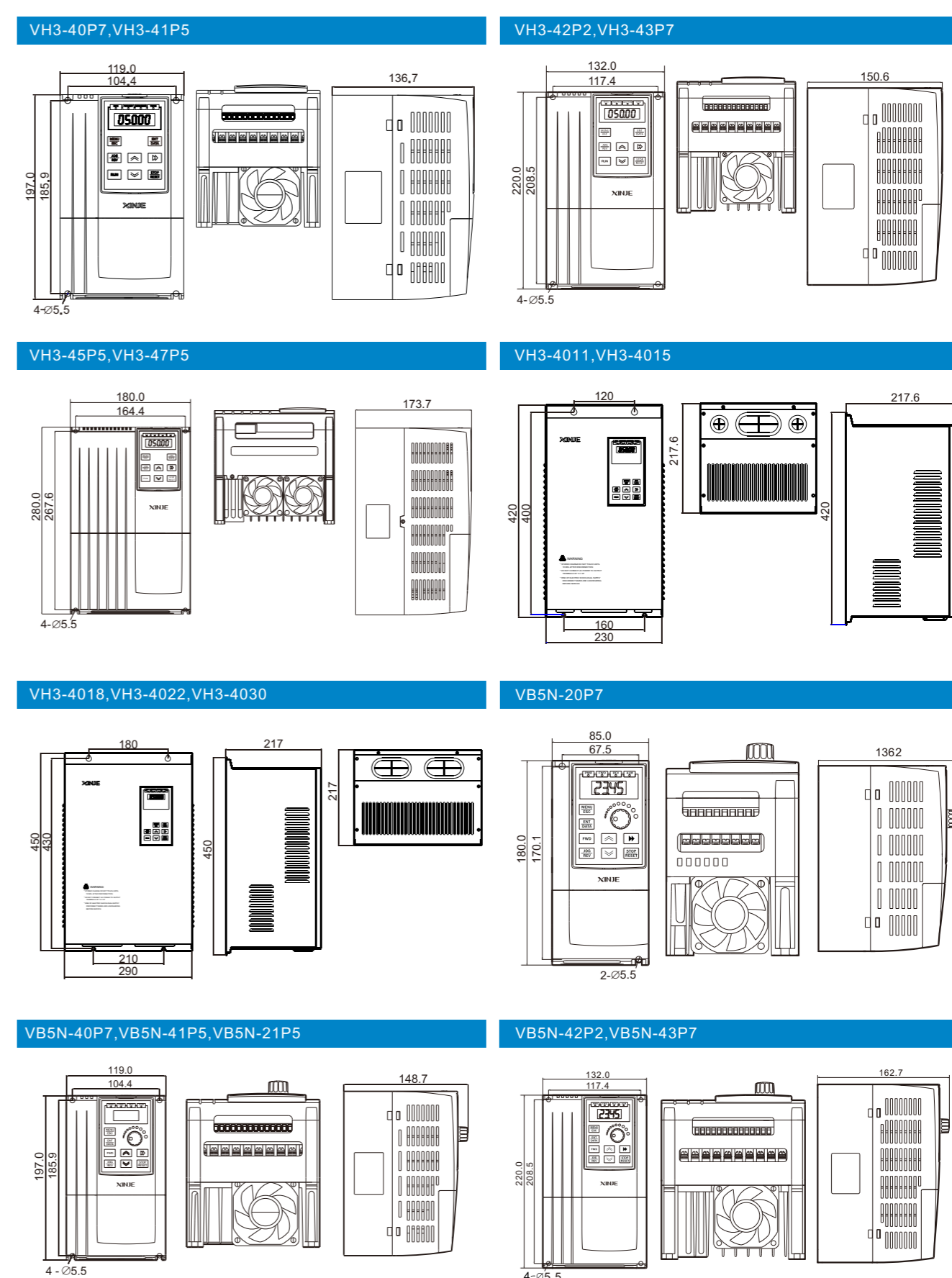


Brake resistor and unit list

Specification (KW)	Brake unit		Brake resistor*		
	Specification	Number	Equivalent brake resistance (Ω)	Equivalent brake power	
220V	0.75	Built-in	1	≥150	
	1.5		1	≥100	
	2.2		1	≥70	
380V (not include VH3)	0.75	Built-in	1	≥300	
	1.5		1	≥300	
	2.2		1	≥200	
	3.7		1	≥200	
	5.5		1	≥100	
	7.5		1	≥75	
	11	1	≥50		
	15	1	≥40		
	18.5	BRU-4045	1	≥32	
	22		1	≥27.2	
	30		1	≥20	
	37		1	≥16	
	45		1	≥13.6	
	55		1	≥10	
	380V VH3		0.75	Built-in	1
1.5			1		≥220
2.2			1		≥200
3.7		1	≥130		
5.5		1	≥90		
7.5		1	≥65		
11		1	≥43		
15	1	≥32			
18.5	DBM-4030	1	≥25		
22	DBM-4030	1	≥22		
30	DBM-4045	1	≥13		

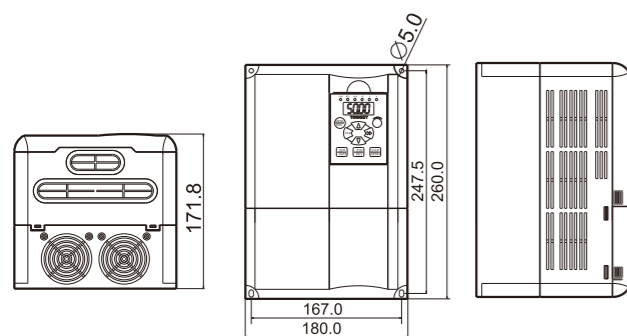
Note: The *products need to be matched by customers themselves.

Appearance And Dimension (unit: mm)

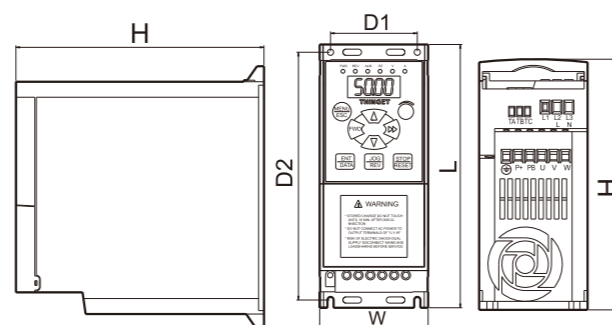


Product Introduction

VB5-45P5, VB5-47P5

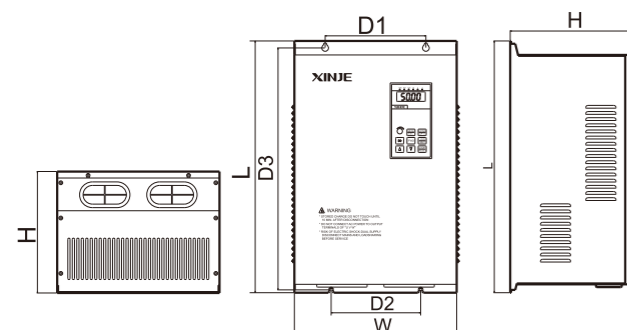


VB3, VB5 series 0.75~3.7KW

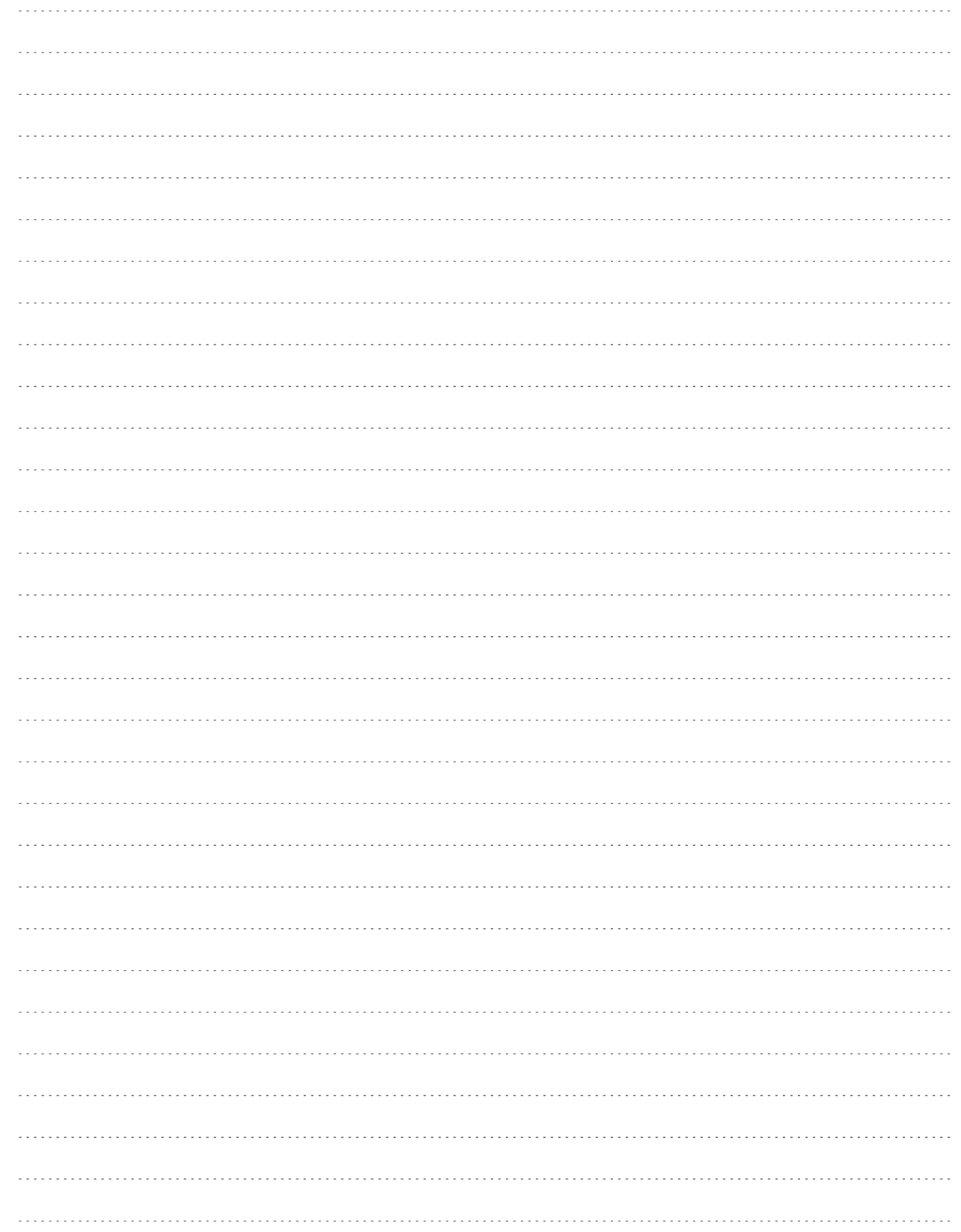


Product model	W	D1	L	D2	H
VB5-20P7	70	56	170	160	162
VB5-21P5					
VB5-22P2					
VB3/VB5-40P7	80	56	200	190	162
VB3/VB5-41P5					
VB3/VB5-42P2					
VB3/VB5-43P7					

V5 series three-phase 11~55KW



Product model	W	D1	L	D2	H	D3
V5-4011	230	120	420	160	218	400
V5-4015						
V5-4018	290	180	450	210	217	430
V5-4022						
V5-4030						
V5-4037	375	230	581	230	261	551
V5-4045						
V5-4055						



STEPPER SYSTEM

DPL Series / DP Series



- Digital control mode, accurate and advanced sine current PWM control technology
- More stable performance, excellent noise immunity ability
- High subdivision precision, easy to set the current, pulse frequency up to 200KHz
- The configuration panel is easy to operate

DPL SERIES FEATURES

Excellent driving technology

DPL series stepper driver is digital two-phase stepper drive. it can set the subdivision from 200 to 40000 and any current less than rated current. The driver uses sine wave current control technology, makes the motor running stable, low noise, is fit for most application cases. Built-in parameter self-study function can automatically produce the best parameters for different motor.

Simple model selection

Suitable for small and medium-sized device, such as pneumatic marking machine, labeling machine, cutting machine, laser marking machine, plotter, small engraving machine, handling machine. It has good effect for the needs of low vibration, small noise, high precision, high speed.

Two-phase stepper driver model list

Model	Current (A)	Voltage (V)		Max pulses per rotation	Matched motor
		Range	Typical value		
DPL-425	0.7 ~ 3.0	DC: 20 ~ 50	36	40000	42/57
DPL-685	1.9 ~ 5.0	DC: 36 ~ 50	48	40000	57/86
DPL-708A	2.0 ~ 6.0	AC: 20 ~ 80	68	40000	57/86
		DC: 30 ~ 100			

Complete function and performance

- Parameter self-study function
- Low motor running noise
- Control signal is 24V, connect to PLC directly
- Built-in high subdivision, subdivision is dynamic selectable, pulses per circle up to 40000
- Auto-half the current when resting
- Photoelectric differential signal input
- Overvoltage, overcurrent, short circuit protection

Electric features

Item	Min value	Typical value	Max value
Logic input current (mA)	4	7	16
Stepper pulse frequency (KHz)	0	-	200
Insulation resistor (MΩ)	500	-	-
Environment temperature	0°C ~ 50°C		
Max working temperature	60°C		
Humidity	1.40~90% RH (no condensation)		
Vibration	5.9m/s ² Max		
Storage temperature	-20°C ~ 65°C		

Parameter self-study function

- SW4 of CN1 has the function of semi-current, full-current setting, parameter self-study.
- Parameter self-study function can produce the best parameters according to the motor and maximize the performance of motor.
- Method 1: SW4 from ON to OFF, then from OFF to ON in one second.
- Method 2: SW4 from OFF to ON, then from ON to OFF in one second.

- If toggle back and forth SW4 of CN1 once in 1 second, driver can auto-indentify the motor parameters and control the parameter self-study. Please do this operate when the power supply voltage or other condition changed, otherwise the motor running will be abnormal. Please note it cannot input pulse, the direction signal cannot change. The self-study time cannot less than 3 seconds.

Current setting

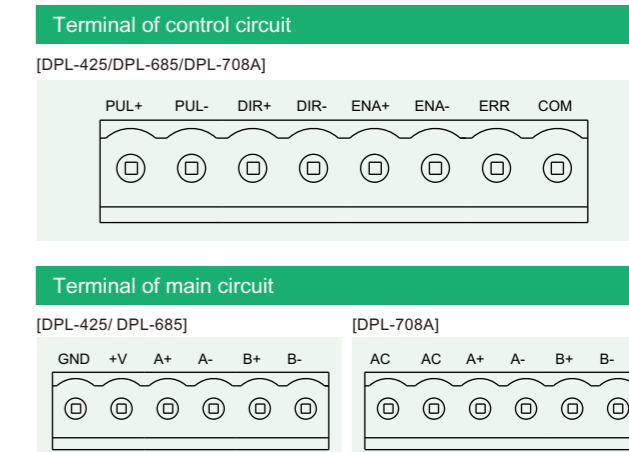
CON1 of DPL-425						CON1 of DPL-685						CON1 of DPL-708A					
Peak	RMS	SW1	SW2	SW3		Peak	RMS	SW1	SW2	SW3		REF Current	PK Current	SW1	SW2	SW3	
1.0	0.7	OFF	OFF	OFF		2.7	1.9	OFF	OFF	OFF		2.00	2.40	OFF	OFF	OFF	
1.7	1.2	OFF	OFF	ON		3.4	2.4	OFF	OFF	ON		2.57	3.08	OFF	OFF	ON	
2.0	1.4	OFF	ON	OFF		4.0	2.8	OFF	ON	OFF		3.14	3.77	OFF	ON	OFF	
2.4	1.7	OFF	ON	ON		4.2	3.0	OFF	ON	ON		3.71	4.45	OFF	ON	ON	
2.8	2.0	ON	OFF	OFF		5.1	3.6	ON	OFF	OFF		4.28	5.14	ON	OFF	OFF	
3.4	2.4	ON	OFF	ON		6.0	4.2	ON	OFF	ON		4.86	5.83	ON	OFF	ON	
4.0	2.8	ON	ON	OFF		6.5	4.6	ON	ON	OFF		5.43	6.52	ON	ON	OFF	
4.2	3.0	ON	ON	ON		7.0	5.0	ON	ON	ON		6.00	7.20	ON	ON	ON	

Subdivision setting

Pulse/rev	SW2	SW3	SW4	SW5
200	OFF	OFF	OFF	OFF
400	OFF	OFF	OFF	ON
800	OFF	OFF	ON	OFF
1600	OFF	OFF	ON	ON
3200	OFF	ON	OFF	OFF
6400	OFF	ON	OFF	ON
12800	OFF	ON	ON	OFF
25600	OFF	ON	ON	ON
1000	ON	OFF	OFF	OFF
2000	ON	OFF	OFF	ON
4000	ON	OFF	ON	OFF
5000	ON	OFF	ON	ON
8000	ON	ON	OFF	OFF
10000	ON	ON	OFF	ON
20000	ON	ON	ON	OFF
40000	ON	ON	ON	ON

* Notes: DPL-425 set subdivision via SW1~SW4 of CN2, DPL-685 and DPL-708A set subdivision via SW5~SW8 of CN1.

Terminal arrangement



DP Series Features

Excellent driving technology

DP series stepper driver used digital control and sine wave current PWM control technology to form current close-loop and position open loop. This control method can real-time correct the position error and has stable performance, stronger anti-interference ability. The stepper driver can match 4, 6, 8 wires mixed type two phases stepper motor and 3 wires mixed type 3-phase stepper motor. The driver has small size and high cost performance.

Stable performance

DP series stepper driver has high input voltage and output current, improved the motor output torque at high-speed, controlled the positioning precision at low speed, solved the problem of large noise, vibration, serious heating when motor is running, makes the motor running more stable.

Complete protection function

Overvoltage, overcurrent, short circuit, under voltage protection, the protection circuit will cut off the PWM output if there is error, the alarm indicator will show related message, the error signal will output from ERRO, COM.

High subdivision precision, easy to set current

The performance was improved significantly by using advanced current control technology. The max input pulse frequency is 200KHz, it enabled to output large torque at high speed.

Naming rule

Take DP-504-L as an example

DP - 50 4 - L
 ① ② ③ ④

① Stepper driver

② Effective current 5.0A

③ Voltage level: 40V

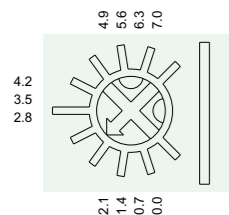
④ Pulse voltage: 5V

*Note: default model pulse voltage is +24V collector signal. -L model pulse voltage is +5V collector signal.

Current setting

Set the current through lap potentiometer

It can set any current levels less than max output current through lap potentiometer. The full-current and semi-current mode can be set through SW1.



*Note: DP-153, DP-304 has auto semi-current function, no need SW1 to set the full-current or semi-current mode.

Set the current through DIP switch

Set the current through SW1 to SW3 of CN1, the range is 0~5.0A. SW4 can set the semi-current and full-current.

I(A)	SW1	SW2	SW3
1.5	OFF	OFF	OFF
2.0	OFF	OFF	ON
2.5	OFF	ON	OFF
3.0	OFF	ON	ON
3.5	ON	OFF	OFF
4.0	ON	OFF	ON
4.5	ON	ON	OFF
5.0	ON	ON	ON

Rich models for choice

There are many stepper driver models for choice, it is suitable for small automation equipment of low noise, high precision, low vibration, such as cutting machine, CNC machine.

Two-phase stepper driver list

Model	Type	Current (A)	Voltage (V)		Max pulses per rotation	Matched motor
			Range	Typical value		
DP-153	2-phase subdivision basic type	0 ~ 1.5	DC +12 ~ +30	DC 24V	25600	42
DP-304	2-phase subdivision basic type	0 ~ 2.5	DC +12 ~ +40	DC 36V	12800	42,57
DP-308D	2-phase subdivision standard type	0 ~ 3.0	DC +20 ~ +80	DC 48V	40000	42,57
DP-504	2-phase subdivision standard type	0 ~ 5.0	DC +20 ~ +40	DC 36V	40000	57,86
DP-508	2-phase subdivision standard type	0 ~ 5.0	DC +20 ~ +80	DC 48V	40000	86
DP-508D	2-phase subdivision special type	0 ~ 5.0	DC +35 ~ +80	DC 48V	40000	86

*Note: DP-308D has the function of overvoltage, overcurrent and short circuit protection. DP-508D was added short circuit protection compared to DP-508.

Three-phase stepper driver list

Model	Type	Current (A)	Voltage (V)		Max pulses per rotation	Matched motor
			Range	Typical value		
DP-7022	3-phase subdivision standard type	0 ~ 7.0	AC200~240	AC220V	40000	86,110,130

Electric features

Item	Min value	Typical value	Max value
Logical input current (mA)	4	7	16
Stepper pulse frequency (KHz)	0	-	200
Insulation resistor (MΩ)	500	-	-
Environment temperature	0°C~50°C		
Max working temperature	60°C		
Humidity	1.40~90%RH (no condensation)		
Vibration	5.9m/s ² Max		
Storage temperature	-20°C~65°C		

Subdivision setting

Set the subdivision through DIP switch

Set the subdivision through SW2, SW3, SW4, SW5

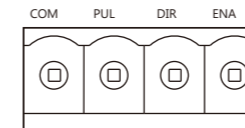
Subdivision times	Step/circle (1.8/step)	SW2	SW3	SW4	SW5
1	200	OFF	OFF	OFF	OFF
2	400	OFF	OFF	OFF	ON
4	800	OFF	OFF	ON	OFF
8	1600	OFF	OFF	ON	ON
16	3200	OFF	ON	OFF	OFF
32	6400	OFF	ON	OFF	ON
64	12800	OFF	ON	ON	OFF
128	25600	OFF	ON	ON	ON
5	1000	ON	OFF	OFF	OFF
10	2000	ON	OFF	OFF	ON
20	4000	ON	OFF	ON	OFF
25	5000	ON	OFF	ON	ON
40	8000	ON	ON	OFF	OFF
50	10000	ON	ON	OFF	ON
100	20000	ON	ON	ON	OFF
200	40000	ON	ON	ON	ON

*Note: DP-153, DP-304 set the subdivision through SW1, SW2, SW3; DP-508 set the subdivision through SW5, SW6, SW7, SW8 of CN1.

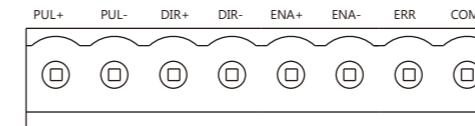
Terminal Arrangement

The terminals of control circuit

[DP-153]

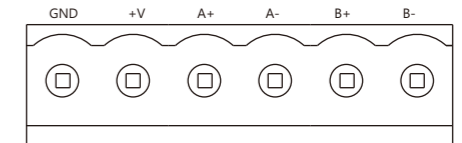


[DP-304/DP-308D/DP-504/DP-508/DP-508D/DP-7022]

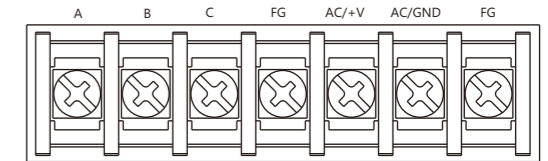


The terminals of main circuit

[DP-153/ DP-304/DP-308D/DP-504/DP-508/DP-508D/]

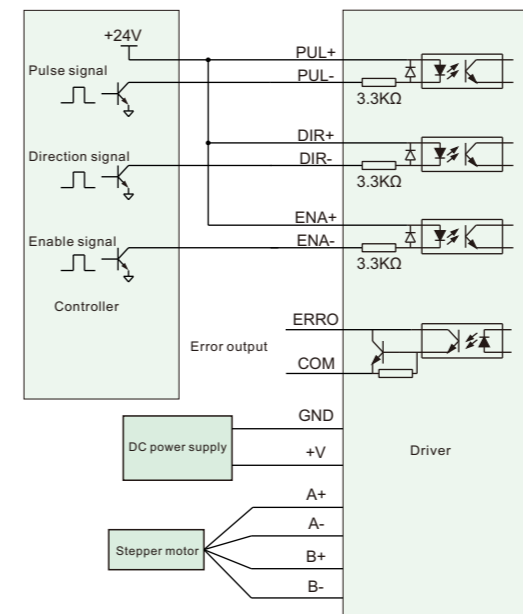


[DP-7022]

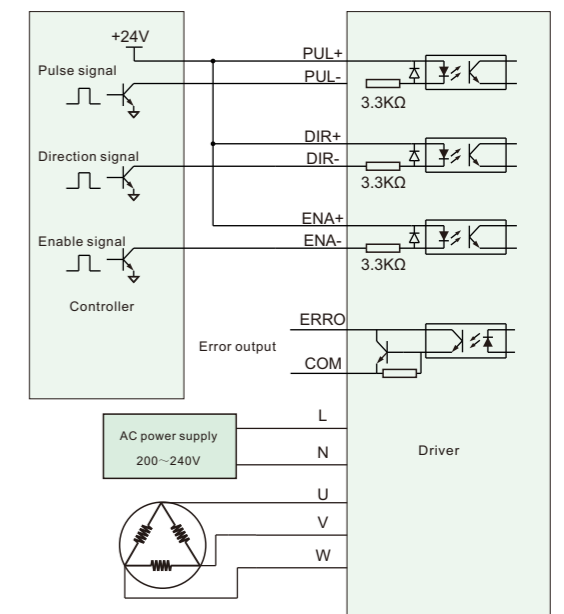


Typical wiring diagram

Two-phase stepper typical wiring diagram



Three-phase stepper typical wiring diagram



*Note: ENA+, ENA- wiring as the diagram is driver enabling OFF; ENA+, ENA- suspended is driver enabling ON.

Mixed Type Stepper Motor Features

Matching rules of stepper motor and driver

Torque

If the load is large, please choose large torque motor.

Positioning precision

It is related to the subdivision numbers.

Motor speed

Please choose large phase current motor for high speed condition to increase the output power. The driver also needs higher power supply voltage.

Motor current, subdivision and power supply voltage are the basis of choosing the model.

Two-phase stepper motor models

Driver model	Suitable motor model	Step angle (°)	Length L (mm)	Static torque (N.m)	Phase current (A)	Phase resistor (Ω)	Phase inductance (mH)	Rotor inertia (g.cm ²)	Shaft body	Shaft diameter (mm)	Weight (kg)
DPL-425/DP-153/DP-304/DP-308D	42BYGH038	1.8	38	0.32	1.2	2.0	4.0	53	Flat	5.0	0.24
	42BYGH047	1.8	47	0.45	1.2	2.7	5.2	78	Flat	5.0	0.38
DPL-425/DPL-685/DPL-708A/DP-304/DP-308D/DP-504	57BYGH051	1.8	51	0.86	3.0	0.75	2.2	228	Flat	8.0	0.62
	57BYGH056	1.8	56	1.1	3.0	0.6	1.8	273	Flat	8.0	0.62
	57BYGH076	1.8	76	1.65	3.0	0.75	2.5	482	Flat	8.0	1.1
DPL-685/DPL-708A/DP-504/DP-508/DP-508D	57BYGH110	1.8	110	3.0	4.0	0.9	4.0	820	Flat	8.0	1.7
	86BYGH065	1.8	65	3.3	2.8	1.1	8.0	1468	Right angle flat	14.0	1.7
	DPL-685/DPL-708A/DP-508/DP-508D	86BYGH078	1.8	78	4.5	4.2	0.56	4.8	1170	Right angle flat	14.0
86BYGH078-J		1.8	78	4.5	4.2	0.56	4.8	1170	Flat key 5*25	14.0	2.3
86BYGH114		1.8	114	8.5	4.2	0.85	7.4	3547	Right angle flat	14.0	3.8
86BYGH114-J		1.8	114	8.5	4.2	0.85	7.4	3547	Flat key 5*25	14.0	3.8
86BYGH150		1.8	150	12.0	4.2	1.1	12.8	5318	Right angle flat	14.0	5.1
86BYGH150-J		1.8	150	12.0	4.2	1.1	12.8	5318	Flat key 5*25	14.0	5.1

Three-phase stepper motor models

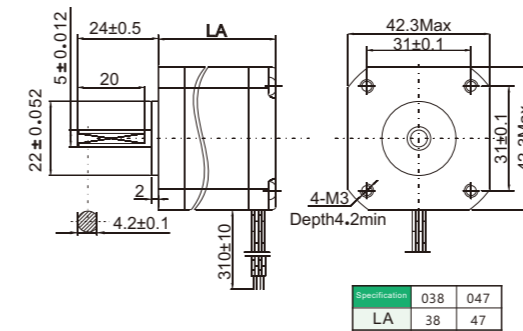
Driver model	Suitable motor model	Step angle (°)	Length L (mm)	Static torque (N.m)	Phase current (A)	Phase resistor (Ω)	Phase inductance (mH)	Rotor inertia (g.cm ²)	Shaft body	Shaft diameter (mm)	Weight (kg)
DP-7022	86BYGH3125	1.2	125	6	5.8	3480	2.7	6.3	14	Flat key5*20	4
	86BYGH3125H	1.2	125	6	3.0	3480	6.0	24	12	Flat key4*20	4
	86BYGH3125H-1	1.2	125	6	3.0	3480	6.0	24	14	Flat key5*20	4
	110BYGH3128	1.2	128.5	8	4.3	6000	3.12	12.9	19	Flat key6*30	5
	110BYGH3153	1.2	153	12	6	9720	1.8	8.01	19	Flat key6*30	6.6
	110BYGH3186	1.2	186.5	16	6.4	13560	2.1	8.88	19	Flat key6*30	9
	110BYGH3221	1.2	221	20	6.9	17400	1.71	7.38	19	Flat key6*30	11.1
	130BYGH3162	1.2	162	15	6.9	20000	1.65	10.5	24	Flat key8*30	11
	130BYGH3191	1.2	191	20	6.9	26700	2.16	14.1	24	Flat key8*30	14.1
	130BYGH3223	1.2	223	28	6.9	33970	2.85	18.3	24	Flat key8*30	17.2
	130BYGH3255	1.2	255	35	6.9	41240	3.3	22.2	24	Flat key8*30	19.8
130BYGH3319	1.2	319	50	6.9	55780	4.2	29.46	24	Flat key8*30	26	

Motor Dimension (unit: mm)

Two-phase motor

42BYGH Type

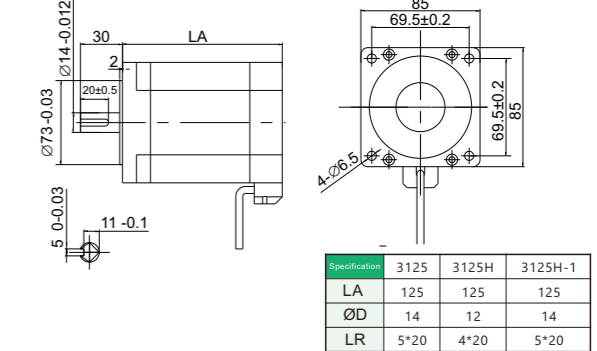
Wiring diagram (see diagram A)



Three-phase motor

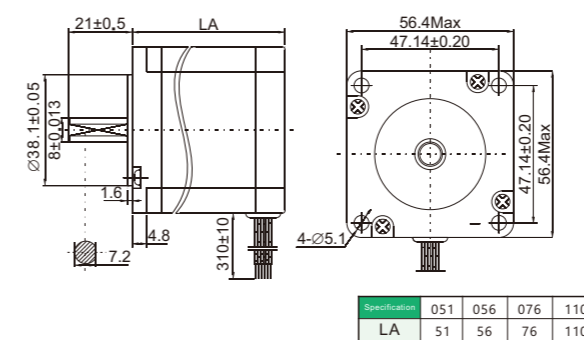
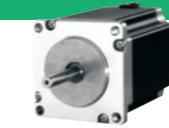
86BYGH Type

Wiring diagram (see diagram B)



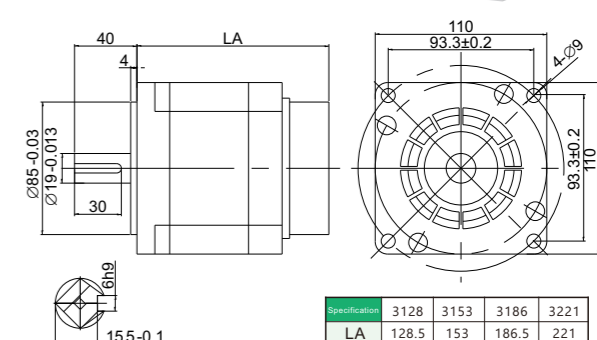
57BYGH Type

Wiring diagram (see diagram A)



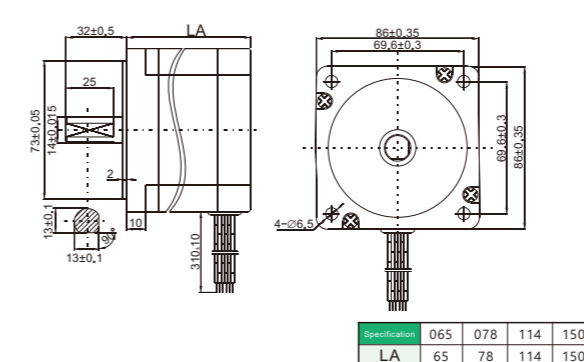
110BYG Type

Wiring diagram (see diagram C)



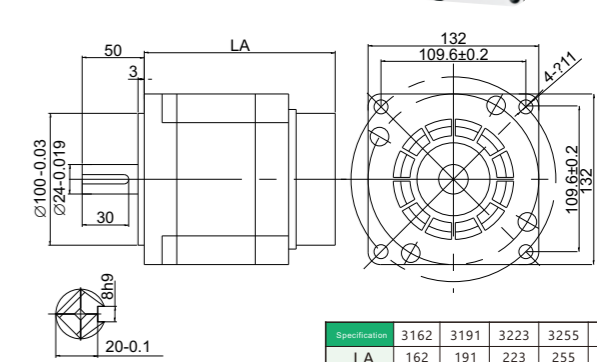
86BYGH Type

Wiring diagram (see diagram A)



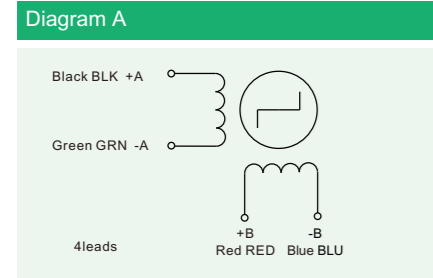
130BYGH Type

Wiring diagram (see diagram C)

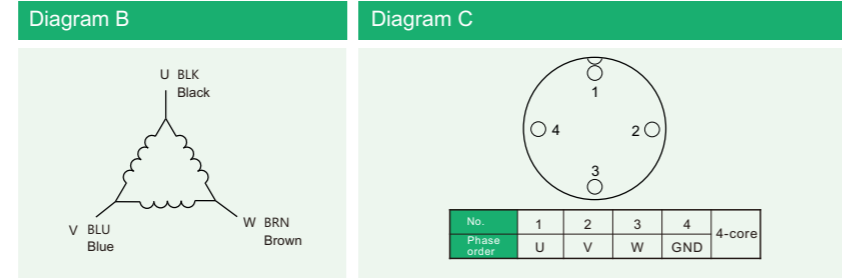


Wiring Diagram

Two-phase motor wiring diagram

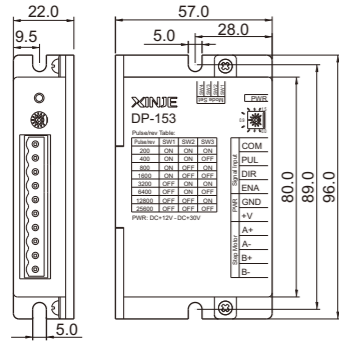


Three-phase motor wiring diagram

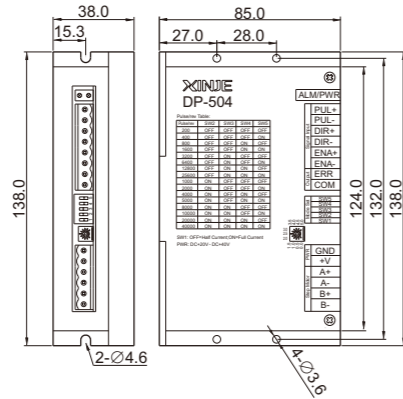


Stepper driver installation dimension (unit:mm)

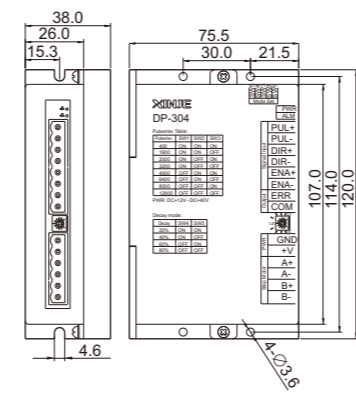
DP-153



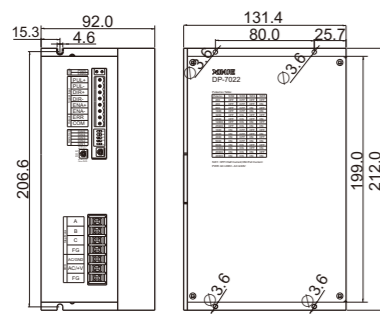
DP-504/DP-508/DP-508D



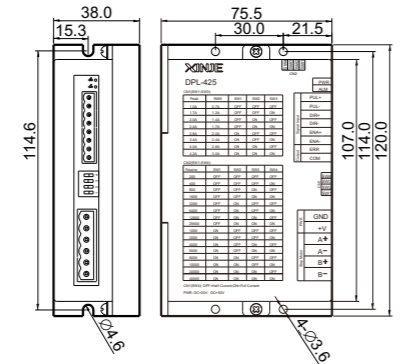
DP-304/DP-308D



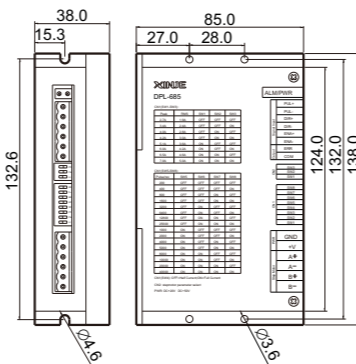
DP-7022



DPL-425



DPL-685



DPL-708A

